DEFENSE INFORMATION SYSTEMS AGENCY
P. O. BOX 4502
ARLINGTON, VIRGINIA 22204-4502

IN REPLY
REFER TO: Joint Interoperability Test Command (JTE) **2 Feb 10**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Special Interoperability Test Certification of Tellabs 7100 Optical Transport Systems and Tellabs 7100 Nano Optical Transport System, Software Release FP5.1 within the Defense Information Systems Network

References: (a) Department of Defense Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) Chairman, Joint Chiefs of Staff Instruction 6212.01E, "Interoperability and Supportability of Information Technology and National Security Systems," 15 December 2008
(c) through (e), see enclosure 1

1. References (a) and (b) establish the Joint Interoperability Test Command (JITC) as the responsible organization for Interoperability Certification.

2. The following Tellabs hardware and software shall hereinafter be referred to as the System Under Test (SUT): The Tellabs 7100 Optical Transport System (OTS) and the 7100 Nano OTS, with Software Release FP5.1, are Dense Wavelength Division Multiplexing platforms designed for metropolitan and regional core networks with tunable transponders and Wavelength Selective Switch-based Reconfigurable Optical Add/Drop Multiplexer modules. The SUT met all tested critical interoperability requirements as set forth by the Unified Capabilities Requirement (UCR) 2008 (reference (c)) and is certified interoperable for use within the Defense Information Systems Network (DISN) in accordance with UCR, section 5.3 for Assured Services Local Area Network Infrastructure (ASLAN) and 5.5 for Network Infrastructure Product Requirement. The JITC certifies all configurations, features, and functions cited in this document for use within the DISN. The JITC accept Tellabs Letter of Compliance for Assured Services Local Area Network Infrastructure, as not all capabilities of ASLAN were tested. The JITC also accept the Tellabs Letter of Compliance as "Like Function" with functionality and capability identical to the hardware components tested at JITC laboratory and capable for certification (mentioned in additional reference (e)). This certification expires upon changes that affect interoperability but no later than three years from the date of this memorandum.

3. The JITC based these findings on the results of testing conducted at the JITC Indian Head, Maryland test facility, and review of Tellabs Letters of Compliance. Testing originally consisted of assessment testing from April through September 2009 against vendor-defined functional and capability requirements. The JITC validated existing test artifacts to determine the interoperability status of the SUT against the UCR 2008 OTS requirements. The Interoperability

JITC Memo, JTE, Special Interoperability Test Certification of Tellabs 7100 Optical Transport Systems and Tellabs 7100 Nano Optical Transport System, Software Release FP5.1 within the Defense Information Systems Network

Certification Summary (enclosure 2) documents all certified requirements for the SUT. Further details are in the JITC Assessment Report.

4. Tables 1 and 2 show the Tellabs equipment interface summary and requirements summary.

Table 1. Tellabs 7100 OTS and 7100 Nano OTS Interface Summary

INTERFACE	UCR 2008 REQUIRED	STATUS	REMARKS
OC-3	Yes	MET	Met UCR 2008 required requirements.
OC-12	Yes	MET	Met UCR 2008 required requirements.
OC-48	Yes	MET	Met UCR 2008 required requirements.
OC-192	Yes	MET	Met UCR 2008 required requirements.
OC-768	Yes	MET	Met UCR 2008 required requirements.
1 Gigabit Ethernet	Yes	MET	Met UCR 2008 required requirements.
10 Gigabit Ethernet-WAN	Yes	MET	Met UCR 2008 required requirements.
10 Gigabit Ethernet-LAN	Yes	MET	Met UCR 2008 required requirements.

LEGEND:
OC Optical Carrier
LAN Local Area network
OTS Optical Transport System
UCR Unified Capabilities Requirement
WAN Wide Area network

Table 2. Tellabs 7100 OTS and 7100 Nano OTS Requirements Summary

REQUIREMENT	UCR 2008 REFERENCE	STATUS	REMARKS
OTS Requirements	5.5.2.1.1.2, 5.5.2.1.1.3, 5.5.2.1.1.4, 5.5.2.1.1.5, 5.5.2.1.1.7, 5.5.2.1.1.8, 5.5.2.1.1.9, 5.5.2.1.1.10, 5.5.2.1.1.11, 5.5.2.1.1.12, 5.5.2.1.2.1.3, 5.5.2.1.2.1.5, 5.5.2.1.2.1.6, 5.5.2.1.2.1.7, 5.5.2.1.2.1.8, 5.5.2.1.2.2.1, 5.5.2.1.2.2.2, 5.5.2.1.3.1, 5.5.2.1.3.2, 5.5.2.1.3.3, 5.5.2.1.3.4, 5.5.2.1.3.5	Certified	Certified based on Special Interoperability Certification testing
Protection and Restoration	5.5.2.2	Certified	Certified based on Special Interoperability Certification testing
Performance Requirements	5.5.2.3	Certified	Certified based on Special Interoperability Certification testing
Reliability and Quality Assurance	5.5.2.4	Certified	Certified based on Special Interoperability Certification testing
Transponder Requirements	5.5.2.5	Certified	Certified based on Special Interoperability Certification testing
Interface Requirements	5.5.2.6	Certified	Certified based on Special Interoperability Certification testing
Muxponder Requirements	5.5.2.7	Certified	Certified based on Special Interoperability Certification testing
Common Physical Design Requirements	5.5.2.8	Certified	Certified based on Special Interoperability Certification testing
Optical Line Amplifier	5.5.2.9	Certified	Certified based on Special Interoperability Certification testing
Optical Supervisory Channel	5.5.2.10	Certified	Certified based on Special Interoperability Certification testing
Optical Add/Drop multiplexor	5.5.2.11	Certified	Certified based on Special Interoperability Certification testing
Standards Compliance	5.5.2.13	Certified	Certified based on combination of Special Interoperability Certification testing and Tellabs Letters of Compliance
Assured Services Local Area Network Infrastructure	5.3.1.3.2, 5.3.1.3.3, 5.3.1.3.4, 5.3.1.3.6, 5.3.1.3.7, 5.3.1.4.1.1, 5.3.1.4.1.2, 5.3.1.4.1.3, 5.3.1.4.1.4, 5.3.1.4.2.1, 5.3.1.4.2.2, 5.3.1.4.2.3, 5.3.1.4.2.4, 5.3.1.4.3.1, 5.3.1.4.3.3, 5.3.1.4.3.4, 5.3.1.6.3, 5.3.1.7.7	Certified	Certified based on combination of Special Interoperability Certification testing and Tellabs Letters of Compliance

Table 2. Tellabs 7100 OTS and 7100 Nano OTS Requirements Summary (continued)

LEGEND:			
OTS	Optical Transport System	UCR	Unified Capabilities Requirement

5. The JITC distributes interoperability information via the JITC Electronic Report Distribution system, which uses Non-secure Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program, which .mil/.gov users can access at https://stp.fhu.disa.mil/ (NIPRNet). Assessment reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool at http://jit.fhu.disa.mil/ (NIPRNet) or http://199.208.204.125/ (Secure Internet Protocol Router Network).

6. The JITC testing point of contact is Mr. Son Pham, commercial (301) 744-2636, or DSN 354-2636. His e-mail address is son.pham@disa.mil. The JITC mailing address is 3341 Strauss Avenue, Suite 236, Indian Head, Maryland 20640-5149. The tracking numbers for the SUT are 0914901 and 0914902.

FOR THE COMMANDER:

Germaine M. Forbes

2 Enclosures a/s

for RICHARD A. MEADOR
Chief, Battlespace Communications Portfolio

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ADDITIONAL REFERENCES

(c) Office of Assistant Secretary of Defense for Networks and Information Integration/ Department of Defense Chief Information Officer Document, "Department of Defense Unified Capabilities Requirements 2008," 22 January 2009
(d) Joint Interoperability Test Command Document, "Tellabs 7100 and 7100-Nano Optical Transport Systems, 5500 Next Generation Cross-Connect Switch, 1134 and 1150 Multi-Service Access Platforms, and 1000 Voice Gateway Special Interoperability Certification Test Report" November 2009
(e) Tellabs Document, "Letters of Compliance," 9 September 2009

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CERTIFICATION TESTING SUMMARY

1. SYSTEM TITLE. Tellabs 7100 and 7100-Nano Optical Transport Systems

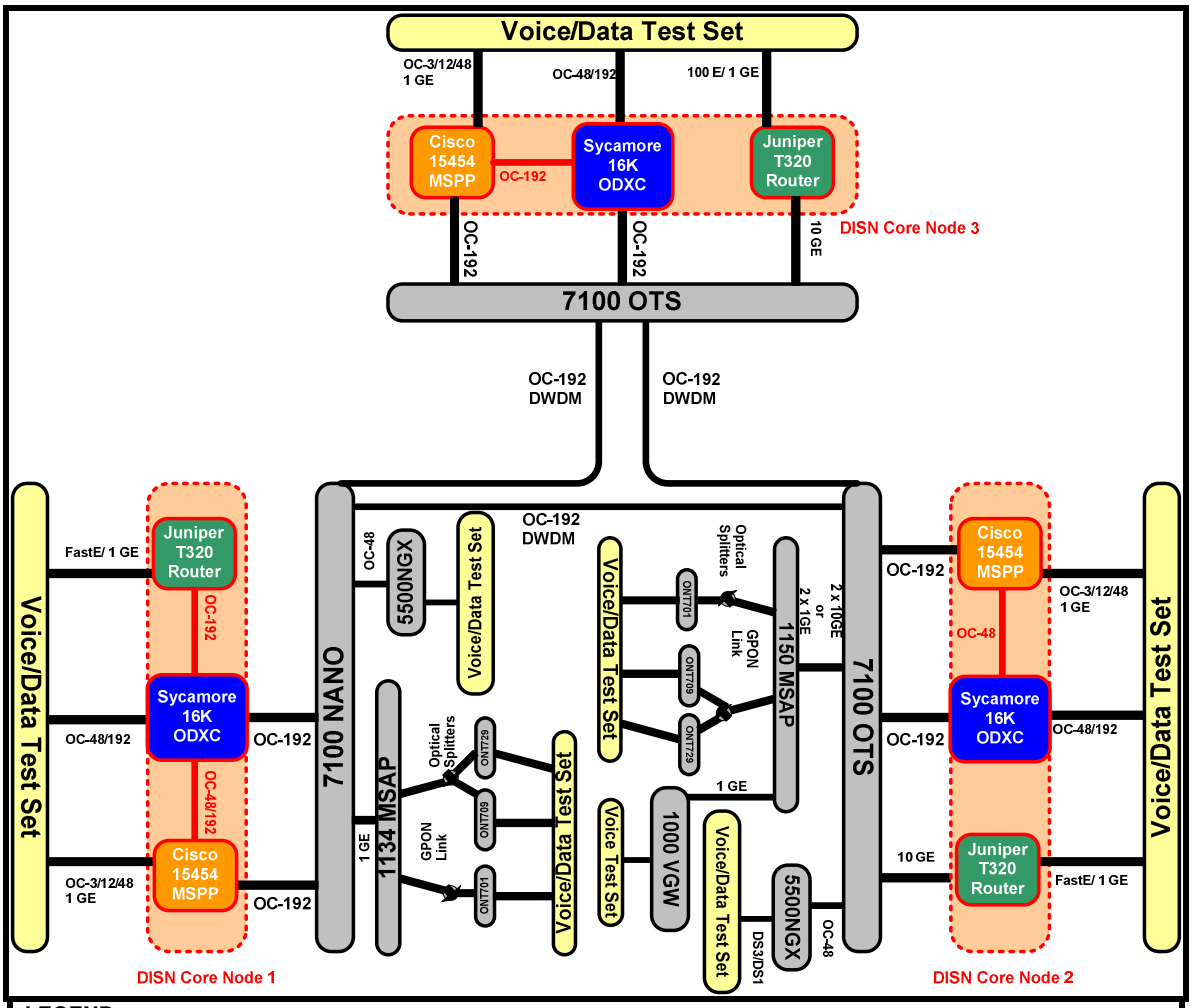
2. PROPONENTS. United States Army Information Systems Engineering Command

3. PROGRAM MANAGER. Mr. Robert Wellborn, address: Commander, HQUSAISEC AMSEL-IE-IS Bldg 53301 Fort Huachuca, AZ 85613-5300
e-mail: robert-wellborn@us.army.mil

4. TESTER. Joint Interoperability Test Command (JITC), Indian Head, Maryland

5. SYSTEM UNDER TEST (SUT) DESCRIPTION. The Tellabs 7100 Optical Transport System (OTS) is a services transport system that combines advanced dynamic optical networking and services layer technologies onto one platform. The Tellabs 7100 uses Dense Wavelength Division Multiplexing (DWDM) to support customers requiring support for long haul, metropolitan, and regional networks. The Tellabs 7100 OTS, Reconfigurable Optical Add-Drop Multiplex modules provide selectable wavelength add/drop transport capability that offers maximum traffic routing flexibility. The Tellabs 7100 OTS has modular cards available to support Add-Drop Multiplexer or Layer-2 switch functions. The Tellabs 7100 Nano is a compact version of the Tellabs 7100 OTS. Tellabs based the 7100 Nano architecture design on Wavelength Selective Switch (WSS) technology. The WSS provides single wavelength add/drop capability with no loss in functionality. With 8 DWDM add/drop ports, any 8 of the 44 available wavelengths can be added or dropped. Users can direct any channel to any of the eight ports. The 7100 Nano also provides remote network reconfiguration capability that precludes the need to visit the site, even when moving traffic onto another wavelength.

6. OPERATIONAL ARCHITECTURE. As defined in the Unified Capabilities Requirements (UCR), the Tellabs 7100 and 7100 Nano are OTSs and the 5500 Next Generation Cross-Connect Switch is a Multi-Service Provisioning Platform (MSPP). The 1134 and 1150 Multi-Service Access Platforms (MSAP) with the accompanying 701/709/729 Optical Network Terminal (ONT), peripherals, and the 1000 Voice Gateway (VGW) were tested as Assured Services Local Area Network devices to demonstrate Tellabs Generic Passive Optical Network technology. The 1134 and 1150 MSAPs are also called Optical Line Terminals (OLT). A high-level Defense Information Systems Network (DISN) node architecture, as depicted in Figure 2-1, displays the role of the OTS and MSPP devices in the DISN architecture. The Tellabs OLTs connect directly to the 7100 OTS using the 7100 Layer-2 support services for link aggregation groups (LAG) shown in Figure 2-2.



LEGEND:

DISN	Defense Information Systems Network	Nano	Small Form 7100 OTS
DWDM	Dense Wavelength Division Multiplexing	NGX	Nest Generation Cross-Connect
FastE	Fast Ethernet	OC	Optical Carrier
GE	Gigabit Ethernet	ODXC	Optical Digital Cross-Connect
GPON	Generic Passive Optical Network	ONT	Optical Network Terminal
MSAP	Multi-Service Access Platform	OTS	Optical Transport System
MSPP	Multi-Service Provisioning Platform	VGW	Voice Gateway

Figure 2-1. Tellabs Test Bed Architecture

7. REQUIRED SYSTEMS INTERFACES. For SUT testing, the JITC used requirements from the UCR 2008, dated January 2009 and industry best practices. Appendix A to Enclosure 2 lists all test cases and requirement references. Table 2-1 lists the Tellabs 7100 OTS and 7100 Nano OTS interfaces tested.

Table 2-1. Tellabs 7100 OTS and 7100 Nano OTS Interface Summary

INTERFACE	UCR 2008 REQUIRED	STATUS	REMARKS
OC-3	Yes	MET	Met UCR 2008 required requirements.
OC-12	Yes	MET	Met UCR 2008 required requirements.
OC-48	Yes	MET	Met UCR 2008 required requirements.

Table 2-1. Tellabs 7100 OTS and 7100 Nano OTS Interface Summary (continued)

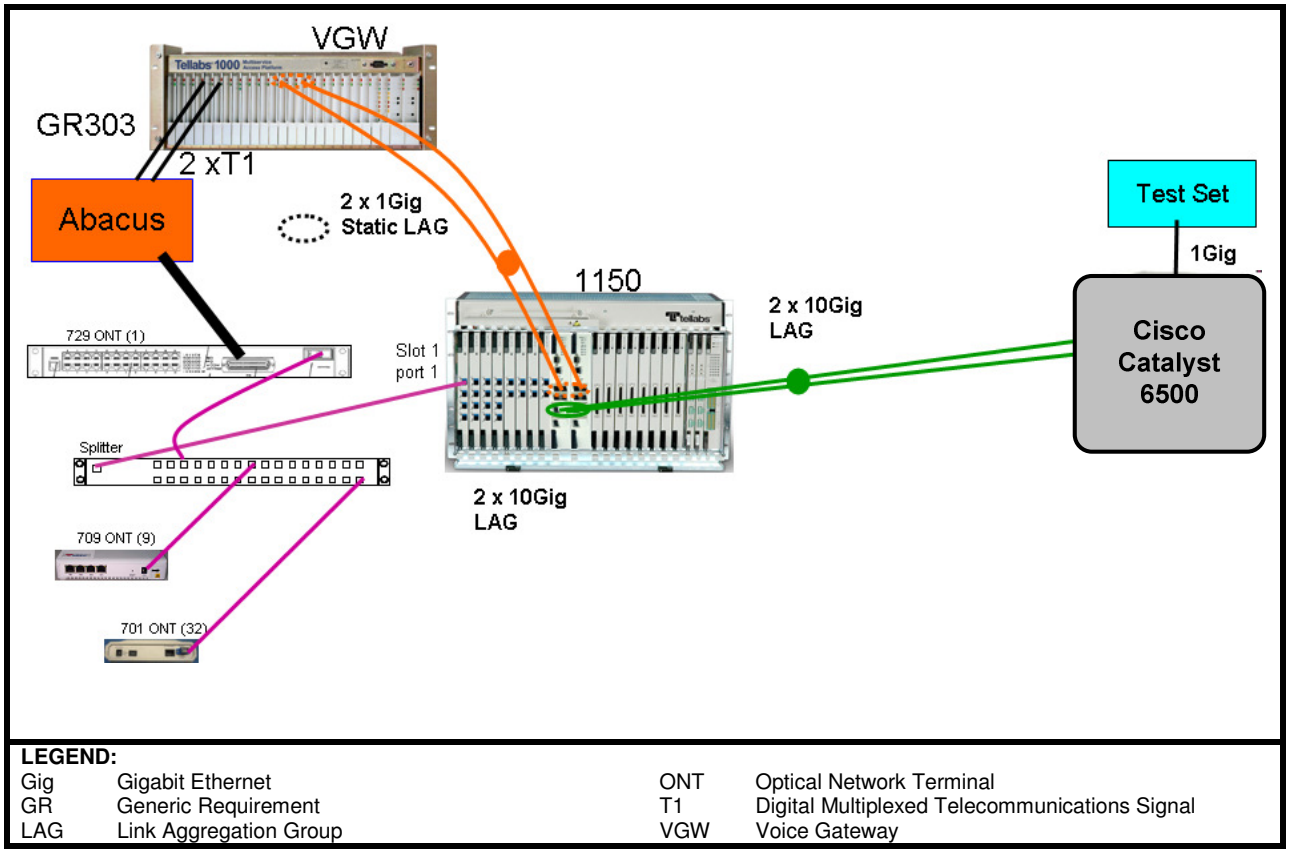
INTERFACE	UCR 2008 REQUIRED	STATUS	REMARKS
OC-192	Yes	MET	Met UCR 2008 required requirements.
OC-768	Yes	MET	Met UCR 2008 required requirements.
1 Gigabit Ethernet	Yes	MET	Met UCR 2008 required requirements.
10 Gigabit Ethernet-WAN	Yes	MET	Met UCR 2008 required requirements.
10 Gigabit Ethernet-LAN	Yes	MET	Met UCR 2008 required requirements.

LEGEND:

OC	Optical Carrier	UCR	Unified Capabilities Requirement
LAN	Local Area network	WAN	Wide Area network
OTS	Optical Transport System		

8. TEST NETWORK DESCRIPTION. The JITC tested the SUT at its Indian Head, Maryland Advanced Technology Testing Laboratory using test configurations shown in Figures 2-2, 2-3, 2-4, and 2-5. Figure 2-1 shows the Tellabs 7100 used as an OTS providing transport for the Cisco 15454 MSPP, Sycamore 16000 Optical Digital Cross Connect (ODXC), Tellabs 5500 NGX, 1134 MSAP, and 1150 MSAP. Voice, video, and data traffic enters the network as depicted by "Voice/Data Test Set" in the diagram.

In Figure 2-2, the Abacus bulk call generator originated voice calls on the 729 ONT and terminated voice calls on the 1000 VGW. Simultaneously data and video traffic originates and terminates on the 701/709 ONTs.



LEGEND:

Gig	Gigabit Ethernet	ONT	Optical Network Terminal
GR	Generic Requirement	T1	Digital Multiplexed Telecommunications Signal
LAG	Link Aggregation Group	VGW	Voice Gateway

Figure 2-2. Tellabs Configuration 1

In Figure 2-3, the Abacus bulk call generator originated voice calls on the 729 ONT and terminated voice calls on the 1000 VGW. Simultaneously data and video traffic originates and terminates on the 701/709 ONTs. The difference in this diagram is the use of the 1134 OLT.

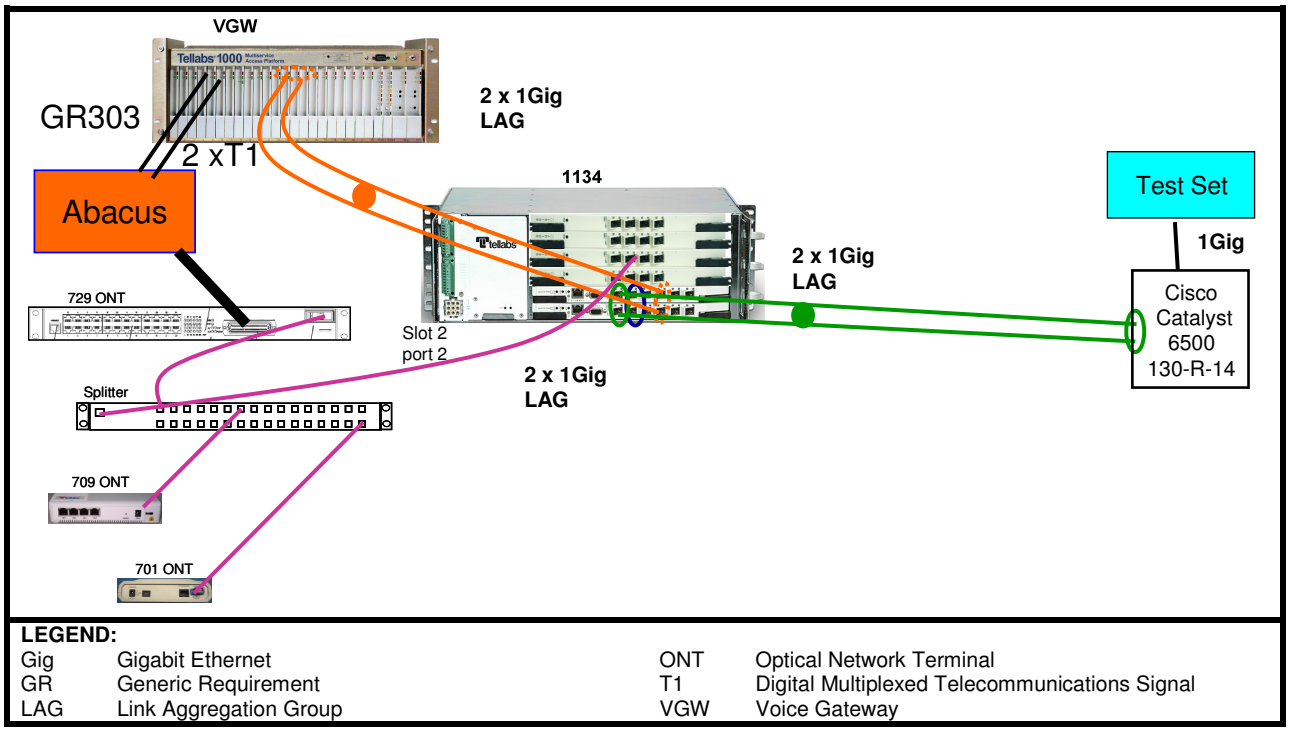
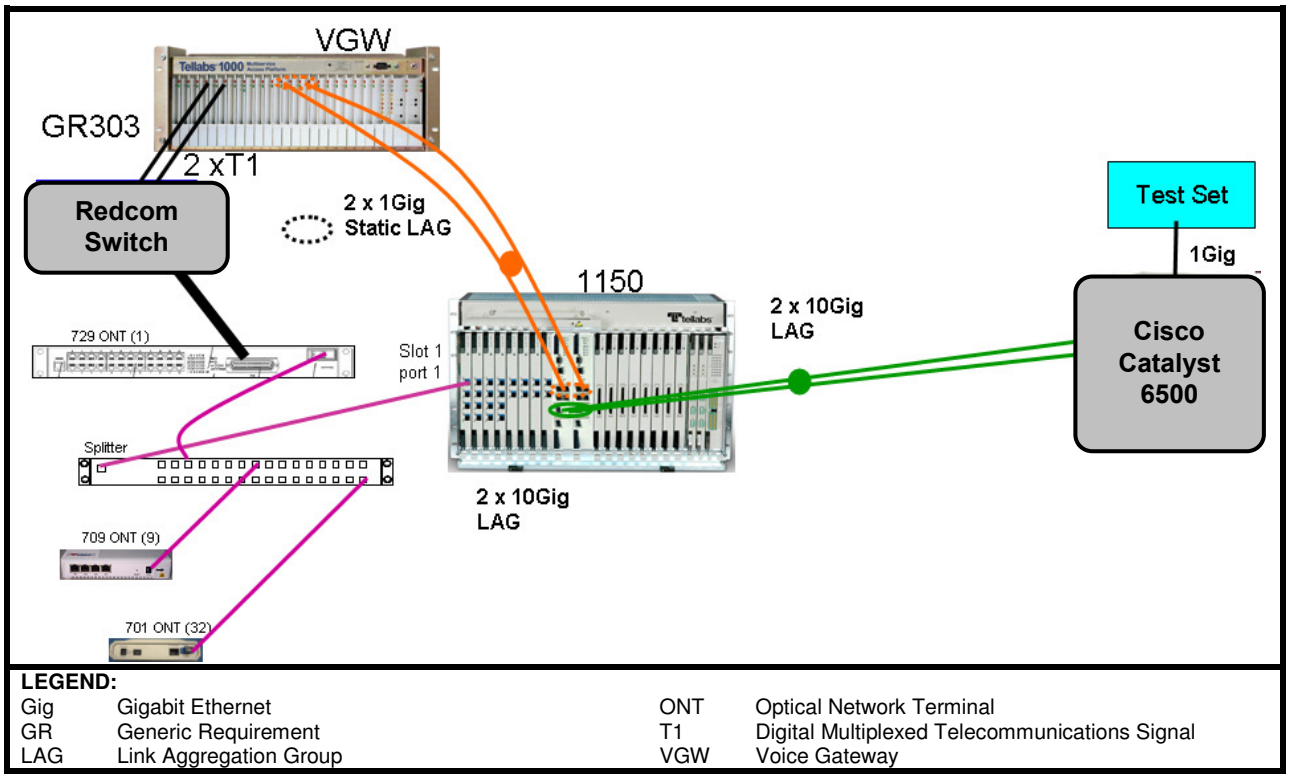


Figure 2-3. Tellabs Configuration 2

In Figure 2-4, the Abacus bulk call generator originated voice calls on the 729 ONT and terminated voice calls from the Redcom Switch. In this scenario, the Redcom Switch interfaced with the 1000 VGW. Simultaneously data and video traffic originates and terminates on the 701/709 ONTs. The difference in this diagram is the use of the 1134 OLT.



LEGEND:

Gig	Gigabit Ethernet	ONT	Optical Network Terminal
GR	Generic Requirement	T1	Digital Multiplexed Telecommunications Signal
LAG	Link Aggregation Group	VGW	Voice Gateway

Figure 2-4. Tellabs Configuration 3

The 1134 and 1150 MSAPs expects a northbound router or switch to connect to the backbone of a network via a LAG. The testing of voice, video, and data was performed using Figure 2-5. In addition, dual connections were used in the LAG to provide load balancing and protection.

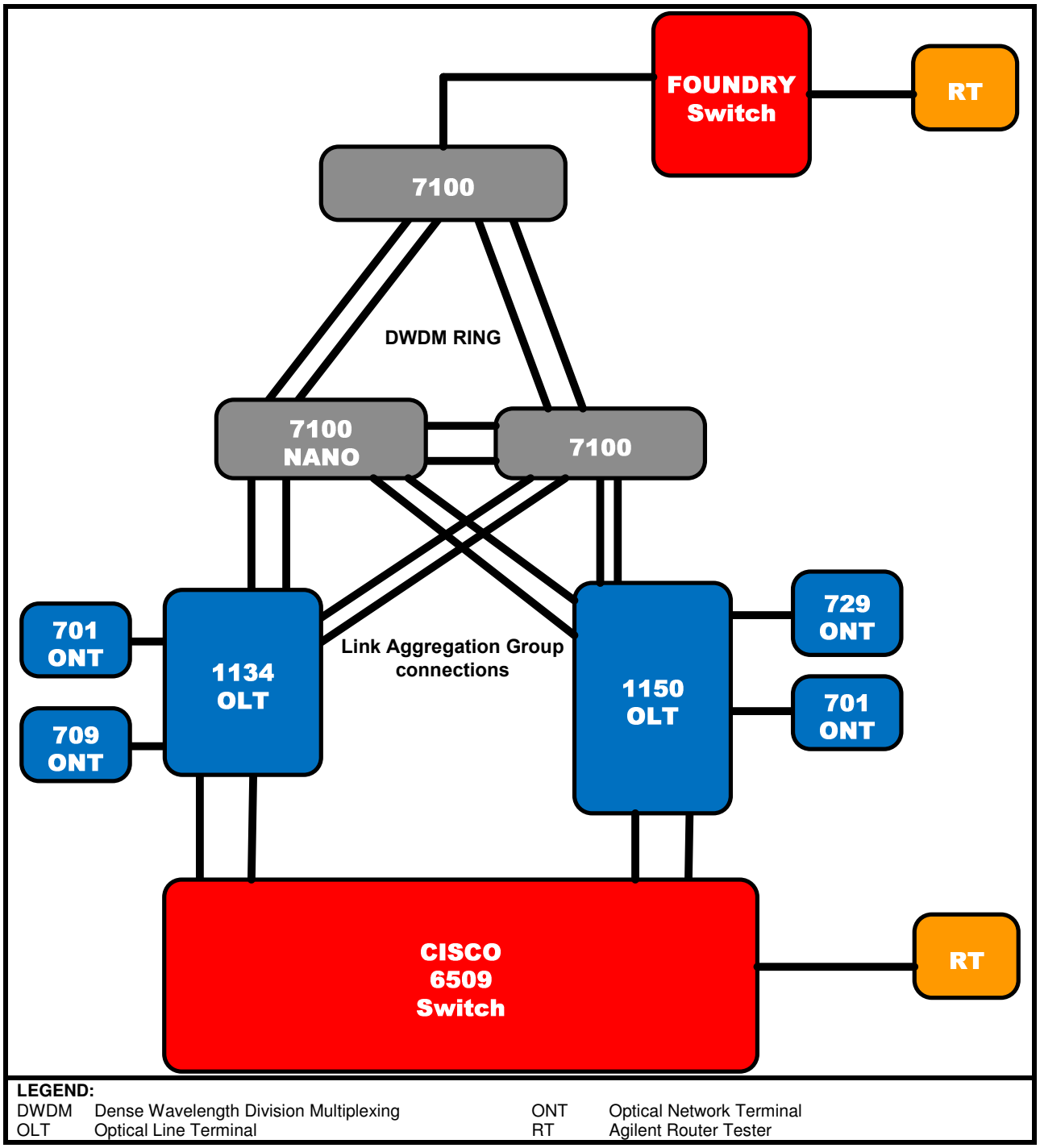


Figure 2-5. Tellabs Configuration 4

9. SYSTEM CONFIGURATIONS. Table 2-2 lists the tested software configuration in Figure 2-1. The DISN Core Equipment used to test the Tellabs 7100 is listed in Table 2-3. Table 2-4 lists the test equipment the JITC used to generate voice, Synchronous Optical Network (SONET), and Internet Protocol (IP) traffic.

Table 2-2. Tested Tellabs Equipment

PLATFORM	SOFTWARE RELEASE	APPLICATION
Tellabs 7100	FP5.1.1	VxWorks – not user accessible
Tellabs 7100 Nano	FP5.1.1	VxWorks – not user accessible
Tellabs 5500 NGX	FP3.2.3.1	OSE – not user accessible
1134 MSAP	FP25.3.1	MontaVista Linux 4.0 – not user accessible
1150 MSAP	FP25.3.1	MontaVista Linux 4.0 – not user accessible
1000 VGW	13.4.7	VxWorks – not user accessible
Tellabs 7100 Tellabs Manager Server Tellabs 719x NMS	FP6.0	Node Management Software
Tellabs 5500 NGX Tellabs Manager	FP6.0	Node Management Software
1134/1150 MSAP Element Management System	FP8.4	Node Management Software
Tellabs Service Layer Manager Server Universal Gateway Server	FP8.4	System Management Software

LEGEND:

MSAP	Multi-Service Access Platform	NMS	Network Management System
Nano	Small Form 7100 Chassis	VGW	Voice Gateway
NGX	Next Generation		

Table 2-3. Non-SUT Equipment

VOICE AND DATA TEST SET	SOFTWARE VERSION	INTERFACE CARDS
Cisco 15454	09.00-008I-17.17	ETH 100T-12-G, OC-3IR-STM1 SH-1310-8, OC-12IR-STM4-1310-4, DS-1N-14, G1K-4, OC-192SR/STM-64, OC-48 AS-IR-1310, DS-3N-12E
Sycamore ODXC	7.6.21 Build 0562.26.27.57.14	GPIC2 2 X OC-192/STM-64, GPIC 24 x OC-3-12/STM1-4IR, GPIC2 8 x OC-48/STM16, USC - OC-192 LR 2c LIM 1
Juniper T320 Router	9.2.R2.15	4 x FE 100 Base Tx, 10 x GigE LAN 1000 Base, 1x OC-192 SM SR2, 1 x 10GigE LAN, XENPAK
Cicso Catalyst 6500	12.1 (13)	48 E ports, 8 ports GigE, 2 port 10GigE
RedCom Switch	6.1	1/ 4 Port line card (MA0653-115) 2/ Multi E1/T1 (MET) Interface Board (MA0683-122 3/ Single Slot System Processor (S3P) Board/ line signaling Protocol for trunk lines (GR303 or SS7)(MA0688-101)

LEGEND:

DS	Digital Signal	ODXC	Optical Digital Cross Connect
ETH	Ethernet	R	Revision
GigE	Gigabit Ethernet	SM	Single Mode
LAN	Local Area Network	SR	Short Reach
LIM	Line Interface Module	Tx	Transmit
OC	Optical Carrier	USC	Universal Services Card

Table 2-4. Test Equipment

Manufacturer	Type	Port Type	Software Version
Agilent	Optical Tester	1550 nm	A.06.01
		1310 nm	
	Router Tester 900	OC-3/OC-12 /POS	6.11
		OC-48 Multilayer	
		1000 Base X	
Ixia	Traffic generator	10 Gig	5
		LM1000STX	
Digital Lightwave	Optical Wavelength Manager	Monitor Ports	2.4.0
Spirent Abacus	Bulk Call Generator	T1-RJ45/RJ11	6.0.r20
Agilent	Rack Mounted Router Tester 900	10 Gig LAN/WAN	6.11
		10/100/1000 Base-T	
		1000 Base-X	
		OC-48c POS	
		OC-3/12/POS	
Agilent JDSU	T-Berd 8000	OC-192 POS	6.11
		DSU	6.4
		10/100/1000	
		OC-3-12	
		DS-3	
		OC-192	

LEGEND:

DS	Digital Signal	nm	nanometer
DSU	Data Services Unit	OC	Optical Carrier
Gig	Gigabit	POS	Packet Over Synchronous Optical Network
LAN	Local Area Network	WAN	Wide Area Network

10. TEST LIMITATIONS. The JITC tested the Tellabs devices using the configurations illustrated in Figures 2-2, 2-3, 2-4, and 2-5. Testing covered a wide variety of configurations using multiple traffic paths. It was not possible to test every implementation scenario.

11. TEST RESULTS. In accordance with the UCR 2008 requirements, the Tellabs 7100 and 7100 Nano OTS systems transport and restore traffic in a reliable, timely, and secure manner. The Tellabs 7100 and 7100 Nano OTS systems interoperate with transport switches and access equipment comprising the Department of Defense (DoD) Global Information Grid (GIG). The detailed test report is summarized in appendix A.

12. TEST AND ANALYSIS REPORT. The JITC prepared a detailed report, titled "Tellabs 7100 and 7100-Nano OTSs, 5500 Next Generation Cross-Connect Switch, 1134 and 1150 MSAPs, and 1000 VGW Special Interoperability Certification Test Report" during November 2009. The JITC distributes interoperability information via the JITC Electronic Report Distribution system, which uses Non-secure Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program, which .mil/.gov users can access at https://stp.fhu.disa.mil/ (NIPRNet). Assessment reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool at http://jitc.fhu.disa.mil (NIPRNet) or http://199.208.204.125/ (Secure Internet Protocol Router Network).

APPENDIX A TO ENCLOSURE 2

TEST RESULTS

Table A-1. 7100/7100 Nano Test Results

REQUIREMENT NUMBER	TITLE	REQUIRED RESULTS	ACTUAL RESULTS	REFERENCE	MET/ NOT MET
Tellabs 7100 SC-01	Hardware Design	Warning labels are plainly visible, optical connectors avoid the possibility of eye injury, and visual status indicators are functional.	Warning labels were plainly visible, optical connectors avoided the possibility of eye injury, and visible status indicators were functional.	UCR 2008 Sections 5.5.2.1.1.1, 5.5.2.1.1.14, 5.5.2.8.15	MET
Tellabs 7100 SC-02	System Setting Provisioning	The system identifier, date, and time are configurable.	The system identifier, date, and time were configurable.	UCR 2008 Section 5.5.2.1.1.14	MET
Tellabs 7100 SC-03	Security Access	An administrator-level user was able to add and delete user accounts. There were multiple user account levels. These access levels limited users to specific access abilities.	Three user accounts were configured. 1. An administrator user with the ability to add and delete users. 2. An operational user with the ability to provision circuits. 3. A read-only user with the ability to monitor alarms and view circuits.	Telcordia Generic Requirement (GR)-228, GR-499	MET
Tellabs 7100 SC-04	Inventory Recording	It is possible to record the hardware information for all active cards in the system from a remote location.	It was possible to record the hardware information for all active cards in the system from a laptop loaded with the 7194 EMS software connected to the management network.	ITU-T G.874, Telcordia GR-3000, UCR 2008 Section 5.3.1.6	MET
Tellabs 7100 SC-05	Network Discovery	The EMS discovers the network configuration of an installed network.	The EMS discovered the 7100 Nano node and the two 7100 nodes installed in the JITC laboratory network.	UCR 2008 Sections 5.5.2.1.1.6, 5.5.2.10.2, 5.5.2.10.3	MET
Tellabs 7100 SC-06	Loop-Back Capability	Software loop-back enables traffic to be sent back to the originating point.	Software loop-back enabled traffic to be sent back to the originating point.	UCR 2008 Section 5.5.2.1.1.14, 5.5.2.5.3	MET
Tellabs 7100 SC-07	Internal BER Test Capability	Internal BER Test capability allows circuit verification without external test equipment.	Internal BER Test capability allowed circuit verification without external test equipment.	UCR 2008 Sections 5.5.2.1.1.14, 5.5.2.5.3	MET
Tellabs 7100 SC-08	GigE Throughput	Throughput is greater than 95% for all frame sizes.	Throughput was 100% for all frame sizes.	UCR 2008 Sections 5.3.1.3.1, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.3; RFC 2544	MET

Table A-1. 7100/7100 Nano Test Results (continued)

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 SC-09	10 GigE LAN Throughput	Throughput is greater than 95% for all frame sizes.	Throughput was 100% for all frame sizes.	UCR 2008 Sections 5.3.1.3.1, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.5; RFC 2544	MET
Tellabs 7100 SC-10	10 GigE WAN Throughput	Throughput is greater than 95% for all frame sizes.	Throughput was 100% for all frame sizes.	UCR 2008, Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.4; RFC 2544	MET
Tellabs 7100 SC-11	OC-768 BER	BER is 10^{-12} or less.	Tested OC-768. Zero bit errors for 72 hours.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.2	MET
Tellabs 7100 SC-12	GigE Frame Loss	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	Frame loss was 0% at a load of 100% of line rate for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.3; RFC 2544	MET
Tellabs 7100 SC-13	10 GigE LAN Frame Loss	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	Frame loss was 0% at a load of 100% of line rate for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.5; RFC 2544	MET
Tellabs 7100 SC-14	10 GigE WAN Frame Loss	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	Frame loss was 0% at a load of 100% of line rate for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.4; RFC 2544	MET
Tellabs 7100 SC-15	OC-768 BER	Not applicable.	Replaced with Tellabs 7100 SC-11.	Not applicable	Not applicable

Table A-1. 7100/7100 Nano Test Results (continued)

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 SC-16	GigE Latency	Latency is less than 1 millisecond for all frame sizes.	Latency was 292.435 microseconds.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.3, 5.5.2.7; RFC 2544	MET
Tellabs 7100 SC-17	10 GigE LAN Latency	Latency is less than 1 millisecond for all frame sizes.	Latency was 128.05 microseconds.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.5; RFC 2544	MET
Tellabs 7100 SC-18	10 GigE WAN Latency	Latency is less than 1 millisecond for all frame sizes.	Latency was 128.05 microseconds.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.4; RFC 2544	MET
Tellabs 7100 SC-19	OC-768 BER	BER is 10^{-12} or less.	Tested OC-768. Zero bit errors for 72 hours.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.2	MET
Tellabs 7100 SC-20	OC-3 BER	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4	MET
Tellabs 7100 SC-21	OC-12 BER	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4	MET
Tellabs 7100 SC-22	OC-48 BER	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.1, 5.5.2.7.1	MET
Tellabs 7100 SC-23	OC-192 BER	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.2	MET

Table A-1. 7100/7100 Nano Test Results (continued)

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 SC-24	Overhead Transparency	Overhead bytes are transmitted and received transparently across the Tellabs 7100.	Overhead bytes were transmitted and received transparently across the system.	UCR 2008, Sections 5.5.2.1.2.1.4	MET
Tellabs 7100 SC-25	Redundancy	No bit errors occur for the test circuits when redundant modules/power sources are added or removed.	No bit errors occurred for the test circuits when redundant modules/power sources were added or removed.	UCR 2008 Sections 5.3.1.7.7, 5.5.2.8.12, 5.5.2.11.29.2, 5.5.2.11.29.3	MET
Tellabs 7100 SC-26	Recovery From Total Electric Power Failure	System recovers from a total electrical power failure within 30 minutes.	System recovered from a total electrical power failure within 6 minutes.	UCR 2008 Sections 5.5.2.8.13, 5.5.2.8.20	MET
Tellabs 7100 SC-27	Management Application Usability	The management applications are functional, easy to use, and provide the proper documentation.	The management applications were functional, easy to use, and provided the proper documentation.	ITU-T G.697, G.805, G.874, Telcordia GR-228, GR-253, GR-499, GR-2914	MET
Tellabs 7100 SC-28	Remote Device Configuration and Control	It is possible to remotely configure and control equipment via the OSC. Communication will not be lost when the connection to the primary GNE is removed.	It was possible to remotely configure and control equipment via OSC. Communication was not lost when the connection to the primary GNE is removed.	UCR 2008 Sections 5.5.2.1.1.6, 5.5.2.10.2, 5.5.2.10.3.	MET
Tellabs 7100 SC-29	Hitless Software Upgrade	No bit errors occur during software upgrade.	No bit errors occurred during software upgrade.	UCR 2008 Sections 5.5.2.8.40, 5.5.2.8.43, 5.5.2.8.45	MET
Tellabs 7100 SC-30	Node Equipment Backup and Restore	It is possible to backup and restore equipment configurations.	It was possible to back up and restore equipment configurations.	UCR 2008 Sections 5.5.2.8.39	MET
Tellabs 7100 SC-31	Wavelength Tunability	Tributary card is tunable to the available wavelengths of the Tellabs 7100.	The tributary card was tunable to all of the wavelengths channels available on the 7100 Nano and 7100.	UCR 2008 Sections 5.5.2.5.1, 5.5.2.5.2	MET
Tellabs 7100 SC-32	Wavelength and Optical Signal to Noise Ratio Accuracy (ITU)	All configured wavelengths and their OSNR values are within 10% of ITU values for the duration of the test.	All configured wavelengths and OSNR values were within 10% of ITU values for the duration of the test.	UCR 2008 Sections 5.5.2.5.1, 5.5.2.5.4, 5.5.2.9.7, 5.5.2.9.24	MET
Tellabs 7100 SC-33	Spectrum Auto-Balancing	Channel equalization occurs automatically upon the addition or deletion of wavelengths.	Channel equalization occurred automatically upon the addition or deletion of wavelengths.	UCR 2008 Sections 5.5.2.9.13, 5.5.2.9.14, 5.5.2.9.17, 5.5.2.9.24, 5.5.2.11.20	MET
Tellabs 7100 SC-34	Addition of Wavelengths	Zero bit errors occur when wavelengths are added.	Zero bit errors occurred when wavelengths were added.	UCR 2008 Sections 5.5.2.9.16, 5.5.2.9.17, 5.5.2.9.24, 5.5.2.11.19	MET

Table A-1. 7100/7100 Nano Test Results (continued)

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 SC-35	Removal of Wavelengths	Zero bit errors will occur when wavelengths are dropped.	Zero bit errors occurred when wavelengths were dropped.	UCR 2008 Sections 5.5.2.9.15, 5.5.2.9.17, 5.5.2.9.24, 5.5.2.11.13, 5.5.2.11.19.	MET
Tellabs 7100 SC-36	Wavelength Adjacency Capability	Services provisioned in adjacent channels do not interfere with each other.	Services provisioned in adjacent channels did not interfere with each other.	UCR 2008 Sections 5.5, ITU-T G.694, G.709, G.872	MET
Tellabs 7100 SC-37	Alarm Severity Adjustment	Alarm severities will be adjustable by authorized users.	Alarm severities were adjustable by authorized users.	American National Standards Institute T1.105, T1.117, T1.514, Institute of Electrical and Electronics Engineers 803.3z, 802.3ae, ITU-T G.697, G.709, G.872, G.874, Telcordia GR-253, GR-2914	MET
Tellabs 7100 SC-38	Alarm Reporting	The system properly registers alarms.	The system properly registered alarms.	UCR 2008 Sections 5.3.2.17.3.1.3, 5.5.3.9	MET
Tellabs 7100 SC-39	Automatic Laser Shutdown	Automatic laser shutdown or automatic laser power down to a safe power level occurs when fiber connectivity is interrupted.	Automatic laser power down to a safe power level occurred when fiber connectivity was interrupted.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 SC-40	Optical Protection Manual Switch Times	Switch time for all circuits is less than or equal to 60 milliseconds.	Switch times were between 0.167 milliseconds and 2.209 milliseconds.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 SC-41	OC-192 Optical Protection Automatic Switch Times	Switch time for all SONET circuits is less than or equal to 60 milliseconds.	Switch times were 43.542, 39.354, and 42.823 milliseconds.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET

Table A-1. 7100/7100 Nano Test Results (continued)

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 SC-42	OC-48 Optical Protection Automatic Switch Times	Switch time for all SONET circuits is less than or equal to 60 milliseconds.	Switch times were 23.347, 24.363, and 32.644 milliseconds.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 SC-43	GigE Optical Protection Automatic Switch Times	Switch time for GigE circuit is less than or equal to 60 seconds.	Switch times were 31.235, 35.693, and 48.563 milliseconds.	UCR 2008 Section 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 SC-44	10 GigE LAN Optical Protection Automatic Switch Times	Switch time for 10 GigE LAN circuit is less than or equal to 60 seconds.	Switch times were 46.134, 42.387, and 41.736 milliseconds.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 SC-45	10 GigE WAN Optical Protection Automatic Switch Times	Switch time for 10 GigE WAN circuit is less than or equal to 60 seconds.	Switch times were 29.882, 40.528, and 48.724 milliseconds.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 SC-46	Ethernet Protocols	Configure 7100 and 7100 Nano to pass Layer 2 Ethernet traffic.	Tested VLAN 100 data traffic using RFC 2544 on 7100 and 7100 Nano.	UCR 2008 Sections 5.3.1.3.2 includes 802.3, 802.3ad, 802.3x, 802.1d, 802.1s, 802.1w	MET
Tellabs 7100 SC-47	VLAN Tags	Traffic is allowed on to pass on configured VLANs.	Traffic was allowed to pass on VLAN 5, VLAN 6, and VLAN 7.	UCR 2008 Section 5.3.1.3.4	MET
Tellabs 7100 SC-48	Ethernet Ring Protection	Provisioning an Ethernet ring protects Ethernet traffic.	Ethernet traffic did not drop because of a single ring failure. No service disruption.	UCR 2008 Sections 5.3.1.7.7, 5.5.2.11	MET
Tellabs 7100 SC-49	QoS Parameters	Priority 7 traffic is not interrupted.	Priority 7 traffic was not interrupted.	UCR 2008 Sections 5.3.1.3.3, 5.3.1.3.6	MET

Tellabs 7100 SC-50	LAN Network Monitoring	Tables show unicast, multicast, and broadcast packets.	RMON statistics were viewed using the CLI via a telnet client. RMON statistics were view on the 7194 EMS using the EMS server as an external Simple Network Management Protocol server.	UCR 2008 Section 5.3.1.3.7	MET
Tellabs 7100 SC-51	Ethernet Performance	Performance monitoring statistics are collected for the packet subsystem.	Performance monitoring statistics were collected for the packet subsystem. The statistics were viewed via CLI and via the 7194 EMS.	UCR 2008 Section 5.3.1.6.3	MET
Tellabs 7100 SC-52	Packet Loss, Latency, and throughput Ethernet Network	0 packets lost, latency less than 5 milliseconds, and 100% throughput.	Packet loss was 0. Latency was less than 1 millisecond as recorded by the test equipment. 100% throughput.	UCR 2008 Sections 5.3.1.4.1.1, 5.3.1.4.1.2, 5.3.1.4.1.3, 5.3.1.4.1.4, 5.3.1.4.2.1, 5.3.1.4.2.2, 5.3.1.4.2.3, 5.3.1.4.2.4, 5.3.1.4.3.1, 5.3.1.4.3.3, 5.3.1.4.3.4	MET
Tellabs 7100 SC-53	STS-1 Level Cross-Connects	STS-1 level cross connects are available on the 7100 system.	STS-1 level cross connects were available on the 7100 system	UCR 2008 Sections 5.5.3.3, 5.5.3.4, 5.5.3.5, 5.5.4.8, 5.5.4.9	MET
Tellabs 7100 SC-54	Configuration Changes and Reporting	Configuration changes to the packet subsystem are reported as an event in the alarm window.	Adding a new MAC configuration to the Virtual Switch was reported as an event in the alarm window.	UCR 2008 Section 5.5.3.3, 5.5.3.4, 5.5.3.5, 5.5.4.8, 5.5.4.9	MET

LEGEND:

BER	Bit Error Rate	OC	Optical Carrier
CLI	Command Line Interface	ODXC	Optical Digital Cross Connect
DISN	Defense Information Systems Network		
EMS	Element Management System	P	Provider
GigE	Gigabit Ethernet		
IOP	Interoperability	RFC	Request For Comments
ITU-T	International Telecommunication Union-Telecommunication Standardization	RMON	Remote Monitor
		STS	Synchronous Time Slot
LAN	Local Area Network	UCR	Unified Capabilities Requirements
		WAN	Wide Area Network
MAC	Media Access Control		

Table A-2. 7100/7100 Nano Interoperability Test Results

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 IOP-01	Provisioning the Tellabs 7100 to Transport DISN Services	The interoperability configuration for transport of DISN services is provisionable and operational.	The interoperability configurations for transport of DISN services were provisioned and operational.	UCR 2008 Section 5.5.2.1.1.14	MET
Tellabs 7100 IOP-02	System Transport of DISN GigE Circuit-1	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	0% frame loss with 100% throughput for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.3; RFC 2544	MET
Tellabs 7100 IOP-03	System Transport of DISN GigE Circuit-2	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	0% frame loss with 100% throughput for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.3; RFC 2544	MET
Tellabs 7100 IOP-04	System Transport of DISN GigE Circuit-3	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	0% frame loss with 100% throughput for all frame sizes.	UCR 2008, Section 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.3; RFC 2544	MET
Tellabs 7100 IOP-05	System Transport of DISN OC-3 Circuit-1	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Section 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4	MET
Tellabs 7100 IOP-06	System Transport of DISN OC-3 Circuit-2	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4	MET
Tellabs 7100 IOP-07	System Transport of DISN OC-12 Circuit-1	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4	MET
Tellabs 7100 IOP-08	System Transport of DISN OC-12 Circuit-2	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4	MET
Tellabs 7100 IOP-09	System Transport of DISN OC-48 Circuit-1	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.1, 5.5.2.7.1	MET

Table A-2. 7100/7100 Nano Interoperability Test Results (continued)

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 IOP-10	System Transport of DISN OC-48 Circuit-2	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.1, 5.5.2.7.1	MET
Tellabs 7100 IOP-11	System Transport of DISN OC-192 Circuit-1	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.2	MET
Tellabs 7100 IOP-12	System Transport of DISN OC-192 Circuit-2	BER is 10^{-12} or less.	Zero bit errors.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.2	MET
Tellabs 7100 IOP-13	System Transport of DISN OC-192 Circuit-3	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	All protocols were operational. 0% frame loss with 100% throughput for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.2	MET
Tellabs 7100 IOP-14	System Transport of DISN OC-192 Circuit-4	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	All protocols were operational. 0% frame loss with 100% throughput for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.4, 5.5.2.1.2.1.5, 5.5.2.6.2	MET
Tellabs 7100 IOP-15	System Transport of DISN 10 GigE LAN Circuit	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	All protocols were operational. 0% frame loss with 100% throughput for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.5; RFC 2544	MET
Tellabs 7100 IOP-16	System Transport of DISN 10 GigE WAN Circuit	Frame loss is less than 0.1% at a load of 100% of line rate for all frame sizes.	All protocols were operational. 0% frame loss with 100% throughput for all frame sizes.	UCR 2008 Sections 5.5.2.1.1.7, 5.5.2.1.1.14, 5.5.2.1.2.1.2, 5.5.2.1.2.1.4, 5.5.2.1.2.1.6, 5.5.2.6.4; RFC 2544	MET

Table A-2. 7100/7100 Nano Interoperability Test Results (continued)

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 IOP-17	System Protection of Transported DISN GigE Service	Switch time for GE circuit is less than or equal to 60 seconds.	Switches occurred upon failure, and there were zero errors between switches. Less than 18.43 seconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-18	System Protection of Transported DISN 10 GigE LAN Service	Switch time for 10 GE LAN circuit is less than or equal to 60 seconds.	Switches occurred upon failure, and there were zero errors between switches. Less than 13.79 seconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-19	System Protection of Transported DISN Access OC-48 Service	BER is 10^{-12} or less, and switch time for OC-48 circuit is less than or equal to 60 milliseconds.	Zero bit errors, switches occurred upon failure, and there were zero errors between switches. Less than 26.10 milliseconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-20	System Protection of Transported DISN ODXC OC-48 Service	BER is 10^{-12} or less, and switch time for OC-48 circuit is less than or equal to 60 milliseconds.	Zero bit errors, switches occurred upon failure, and there were zero errors between switches. Less than 29.00 milliseconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-21	System Protection of Transported DISN Access OC-192 Service	Switch time for OC-192 circuit is less than or equal to 60 milliseconds	Switches occurred upon failure, and there were zero errors between switches. Less than 54.54 milliseconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-22	System Protection of Transported DISN ODXC OC-192 Service	Switch time for OC-192 circuit is less than or equal to 60 milliseconds.	Switches occurred upon failure, and there were zero errors between switches. Less than 41.54 milliseconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET

Table A-2. 7100/7100 Nano Interoperability Test Results (continued)

REQUIREMENT NUMBER	TITLE	REQUIREMENT	ACTUAL RESULTS	REFERENCE	MET/NOT MET
Tellabs 7100 IOP-23	System Protection of Transported DISN P Router OC-192 Service	Switch time for DISN P-Router OC-192 circuit is less than or equal to 60 seconds.	Switches occurred upon failure, and there were zero errors between switches. Less than 17.02 seconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-24	Transport of DISN Access Protected OC-48 Service across the System Equipment	Switch time for OC-48 circuit is less than or equal to 60 milliseconds.	Switches occurred upon failure, and there were zero errors between switches. Less than 32.41 milliseconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-25	Transport of DISN ODXC Protected OC-48 Service across the System Equipment	Switch time for OC-48 circuit is less than or equal to 60 milliseconds.	Switches occurred upon failure, and there were zero errors between switches. Less than 32.41 milliseconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-26	Transport of DISN Access Protected OC-192 Service across the System Equipment	Switch time for OC-192 circuit is less than or equal to 60 milliseconds.	Switches occurred upon failure, and there were zero errors between switches. Less than 47.91 milliseconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET
Tellabs 7100 IOP-27	Transport of DISN ODXC Protected OC-192 Service across the System Equipment	Switch time for OC-192 circuit is less than or equal to 60 milliseconds.	Switches occurred upon failure, and there were zero errors between switches. Less than 44.62 milliseconds switch time measurements.	UCR 2008 Sections 5.5.2.9.7, 5.5.2.9.20, 5.5.2.11.23, 5.5.2.11.24, 5.5.2.11.25, 5.5.2.11.27, 5.5.2.11.28, 5.5.2.11.29	MET

LEGEND:

BER	Bit Error Rate	OC	Optical Carrier
DISN	Defense Information Systems Network	ODXC	Optical Digital Cross Connect
GigE	Gigabit Ethernet	P	Provider
IOP	Interoperability	RFC	Request For Comments
ITU-T	International Telecommunication Union-Telecommunication Standardization	UCR	Unified Capabilities Requirements
LAN	Local Area Network	WAN	Wide Area Network

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